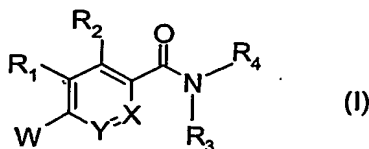


What is claimed is:

1. A compound according to the formula



wherein

$R_1$  and  $R_2$  are independently hydrogen, cyano, halo, nitro, trifluoromethyl, optionally substituted amino, alkyl, alkoxy, aryl, aralkyl, heteroaryl or heteroaralkyl; or

$R_1$  and  $R_2$  combined together with the carbon atoms they are attached to form an optionally substituted 5- to 7-membered aromatic or heteroaromatic ring;

$R_3$  is optionally substituted lower alkyl; or

$R_3$  and  $R_2$  combined together with the amide group to which  $R_3$  is attached and the carbon atoms to which  $R_2$  and the amide are attached form an optionally substituted 5- to 7-membered carbocyclic or heterocyclic ring;

$R_4$  is optionally substituted alkyl, cycloalkyl, heterocyclyl, aryl, aralkyl or heteroaralkyl; or

$R_4$  and  $R_3$  taken together with the nitrogen atom to which they are attached form a 5- to 8-membered ring which may be optionally substituted or may contain another heteroatom selected from oxygen, nitrogen and sulfur; or

$R_4$  and  $R_3$  taken together with the nitrogen atom to which they are attached form a 8- to 12-membered fused bicyclic ring, which may be optionally substituted or may contain another heteroatom selected from oxygen, nitrogen and sulfur;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen, optionally substituted alkyl or aralkyl; or

$R_5$  and  $R_1$  are optionally substituted alkylene which combined together with the nitrogen atom to which  $R_5$  is attached and the carbon atoms to which W and  $R_1$  are attached form a 5- or 6-membered ring;

$R_6$  is optionally substituted alkyl, cycloalkyl, heterocyclyl, aryl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, cycloalkyl, heterocyclyl, heterocycloalkyl, aralkyl, heteroaralkyl, alkanoyl, aroyl or heteroaroyl; or

W is aryl or heteroaryl; or

W is hydrogen provided that  $R_1$  is  $-NR_5Z$  in which Z is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ; or

W and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic or heteroaromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$ ;

X and Y are independently CH or nitrogen; or

$-X=Y-$  is  $-CH_2-$ , oxygen, sulfur or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or lower alkyl;

or a pharmaceutically acceptable salt thereof.

2. A compound according to claim 1 wherein

$R_1$  and  $R_2$  are independently hydrogen, halo, optionally substituted amino, lower alkyl or lower alkoxy; or

$R_1$  and  $R_2$  combined together with the carbon atoms they are attached to form an optionally substituted 6-membered aromatic ring;

$R_3$  is lower alkyl; or

$R_3$  and  $R_2$  combined together with the amide group to which  $R_3$  is attached and the carbon atoms to which  $R_2$  and the amide are attached form an optionally substituted 5- to 7-membered carbocyclic or heterocyclic ring;

$R_4$  is optionally substituted alkyl, cycloalkyl, heterocyclyl, aryl, aralkyl or heteroaralkyl; or

$R_4$  and  $R_3$  taken together with the nitrogen atom to which they are attached form a fully saturated optionally substituted 6-membered ring; or

$R_4$  and  $R_3$  taken together with the nitrogen atom to which they are attached form a fully saturated 10-membered fused bicyclic ring, which may be optionally substituted or may contain another heteroatom selected from oxygen, nitrogen and sulfur;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or lower alkyl; or

$R_5$  and  $R_1$  are optionally substituted alkylene which combined together with the nitrogen atom to which  $R_5$  is attached and the carbon atoms to which W and  $R_1$  are attached form a 5-membered ring;

$R_6$  is optionally substituted alkyl, cycloalkyl, aryl, heteroaryl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl; or

W is aryl or heteroaryl; or

W is hydrogen provided that  $R_1$  is  $-NR_5Z$  in which Z is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ; or

W and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$ ;

X and Y are independently CH or nitrogen; or

$-X=Y-$  is  $-CH_2-$ , oxygen, sulfur or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or lower alkyl;

or a pharmaceutically acceptable salt thereof.

3. A compound according to claim 2 wherein

$R_1$  and  $R_2$  are independently hydrogen, halo, optionally substituted amino, lower alkyl or lower alkoxy; or

$R_1$  and  $R_2$  combined together with the carbon atoms they are attached to form an optionally substituted 6-membered aromatic ring;

$R_3$  is methyl or ethyl; or

$R_3$  and  $R_2$  combined together with the amide group to which  $R_3$  is attached and the carbon atoms to which  $R_2$  and the amide are attached form a 5- to 7-membered carbocyclic ring;

$R_4$  is  $-(CHR_{11})_nR_{12}$  in which

n is zero or an integer from 1 to 3;

$R_{11}$  is hydrogen, hydroxy or optionally substituted lower alkyl;

$R_{12}$  is aryl, heterocyclyl or cycloalkyl; or

$R_4$  and  $R_3$  taken together with the nitrogen atom to which they are attached form an optionally substituted decahydroquinoline or decahydroisoquinoline which may contain another heteroatom selected from oxygen, nitrogen and sulfur;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl; or

$R_5$  and  $R_1$  are alkylene which combined together with the nitrogen atom to which  $R_5$  is attached and the carbon atoms to which W and  $R_1$  are attached form a 5-membered ring;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl; or

W is optionally substituted aryl or heteroaryl; or

W is hydrogen provided that  $R_1$  is  $-NR_5Z$  in which Z is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ; or

W and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$ ;

X is CH;

Y is CH or nitrogen; or

$-X=Y-$  is  $-CH_2-$ , oxygen, sulfur or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or methyl;

or a pharmaceutically acceptable salt thereof.

4. A compound according to claim 3 wherein

$R_1$  and  $R_2$  are independently hydrogen, halo, lower alkyl or lower alkoxy; or

$R_1$  and  $R_2$  combined together with the carbon atoms they are attached to form an optionally substituted 6-membered aromatic ring;

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$R_3$  is methyl or ethyl;

$R_4$  is  $-(CHR_{11})_nR_{12}$  in which

$n$  is zero or an integer of 1;

$R_{11}$  is hydrogen;

$R_{12}$  is optionally substituted cyclohexyl; or  $R_{12}$  is optionally substituted 1-adamantyl providing that  $n$  is an integer of 1;

$W$  is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl; or

$W$  is aryl or heteroaryl; or

$W$  and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$ ;

$X$  is CH;

$Y$  is CH or nitrogen; or

$-X=Y-$  is  $-CH_2-$ , oxygen, sulfur or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or methyl;

or a pharmaceutically acceptable salt thereof.

5. A compound according to claim 4 wherein

$R_1$  is hydrogen;

$R_2$  is hydrogen, chloro or methoxy;

$R_3$  is methyl;

$R_4$  is  $-(CHR_{11})_nR_{12}$  in which

$n$  is zero or an integer of 1;

$R_{11}$  is hydrogen;

$R_{12}$  is optionally substituted cyclohexyl; or  $R_{12}$  is optionally substituted 1-adamantyl providing that  $n$  is an integer of 1;

$W$  is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

$X$  is  $CH$ ;

$Y$  is  $CH$ ;

or a pharmaceutically acceptable salt thereof.

6. A compound according to claim 4 wherein

$R_1$  is hydrogen;

$R_2$  is hydrogen or methyl;

$R_3$  is methyl;

$R_4$  is  $-(CHR_{11})_nR_{12}$  in which

$n$  is an integer of 1;

$R_{11}$  is hydrogen;

$R_{12}$  is optionally substituted 1-adamantyl;

$W$  is optionally substituted aryl or heteroaryl; or

$W$  and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

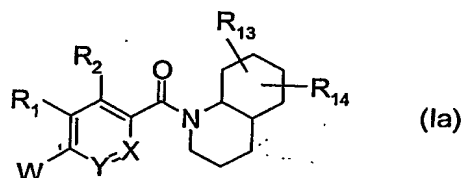
$Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$  in which

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$-X=Y-$  is  $-CH_2-$ , oxygen or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or methyl;

or a pharmaceutically acceptable salt thereof.

7. A compound according to claim 3 of the formula



wherein

$R_1$  and  $R_2$  are independently hydrogen, halo, optionally substituted amino, lower alkyl or lower alkoxy; or

$R_1$  and  $R_2$  combined together with the carbon atoms to which they are attached form an optionally substituted 6-membered aromatic ring;

$W$  is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl; or

$R_5$  and  $R_1$  are alkylene which combined together with the nitrogen atom to which  $R_5$  is attached and the carbon atoms to which  $W$  and  $R_1$  are attached form a 5-membered ring;

$R_8$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl; or

$W$  is aryl or heteroaryl; or

$W$  is hydrogen provided that  $R_1$  is  $-NR_5Z$  in which  $Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,

-C(S)NR<sub>6</sub>R<sub>7</sub>, -S(O)<sub>2</sub>R<sub>6</sub>, or -R<sub>8</sub>; or

W and R<sub>1</sub> combined together with the carbon atoms they are attached to form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo, -NR<sub>5</sub>Z, -C(O)NR<sub>6</sub>R<sub>7</sub>, -OR<sub>9</sub> or -OC(O)NR<sub>6</sub>R<sub>7</sub>;

X is CH;

Y is CH or nitrogen; or

-X=Y- is -CH<sub>2</sub>-, oxygen, sulfur or -NR<sub>10</sub>- in which R<sub>10</sub> is hydrogen or methyl;

R<sub>13</sub> and R<sub>14</sub> are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

8. A compound according to claim 7 wherein

R<sub>1</sub> is hydrogen;

R<sub>2</sub> is hydrogen, chloro, methoxy, ethoxy, propoxy or optionally substituted amino;

W is -NR<sub>5</sub>C(O)R<sub>6</sub>, -NR<sub>5</sub>C(O)OR<sub>6</sub>, -NR<sub>5</sub>C(O)NR<sub>6</sub>R<sub>7</sub>, -NR<sub>5</sub>C(S)NR<sub>6</sub>R<sub>7</sub>, -NR<sub>5</sub>S(O)<sub>2</sub>R<sub>6</sub>, -NR<sub>5</sub>R<sub>8</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, -OR<sub>9</sub> or -OC(O)NR<sub>6</sub>R<sub>7</sub> in which

R<sub>5</sub> and R<sub>7</sub> are independently hydrogen or methyl;

R<sub>6</sub> is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

R<sub>8</sub> is optionally substituted alkyl, aralkyl or heteroaralkyl;

R<sub>9</sub> is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is CH;

R<sub>13</sub> and R<sub>14</sub> are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

9. A compound according to claim 7 wherein

R<sub>1</sub> is methyl, methoxy or optionally substituted amino;

R<sub>2</sub> is hydrogen;



W is  $-\text{NR}_5\text{C}(\text{O})\text{R}_6$ ,  $-\text{NR}_5\text{C}(\text{O})\text{OR}_6$ ,  $-\text{NR}_5\text{C}(\text{O})\text{NR}_6\text{R}_7$ ,  $-\text{NR}_5\text{C}(\text{S})\text{NR}_6\text{R}_7$ ,  $-\text{NR}_5\text{S}(\text{O})_2\text{R}_6$ ,  $-\text{NR}_5\text{R}_8$ ,  $-\text{C}(\text{O})\text{NR}_6\text{R}_7$ ,  $-\text{OR}_9$  or  $-\text{OC}(\text{O})\text{NR}_6\text{R}_7$  in which

$\text{R}_5$  and  $\text{R}_7$  are independently hydrogen or methyl;

$\text{R}_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$\text{R}_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$\text{R}_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is CH;

$\text{R}_{13}$  and  $\text{R}_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

10. A compound according to claim 7 wherein

$\text{R}_1$  and  $\text{R}_2$  are hydrogen;

W is  $-\text{NR}_5\text{C}(\text{O})\text{R}_6$ ,  $-\text{NR}_5\text{C}(\text{O})\text{OR}_6$ ,  $-\text{NR}_5\text{C}(\text{O})\text{NR}_6\text{R}_7$ ,  $-\text{NR}_5\text{C}(\text{S})\text{NR}_6\text{R}_7$ ,  $-\text{NR}_5\text{S}(\text{O})_2\text{R}_6$ ,  $-\text{NR}_5\text{R}_8$ ,  $-\text{C}(\text{O})\text{NR}_6\text{R}_7$ ,  $-\text{OR}_9$  or  $-\text{OC}(\text{O})\text{NR}_6\text{R}_7$  in which

$\text{R}_5$  and  $\text{R}_7$  are independently hydrogen or methyl; or

$\text{R}_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl, or heteroaralkyl;

$\text{R}_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$\text{R}_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is nitrogen;

$\text{R}_{13}$  and  $\text{R}_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

11. A compound according to claim 7 wherein

W is hydrogen;

$\text{R}_2$  is hydrogen;

$R_1$  is  $-NR_5Z$  in which  $Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$  or  $-R_8$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

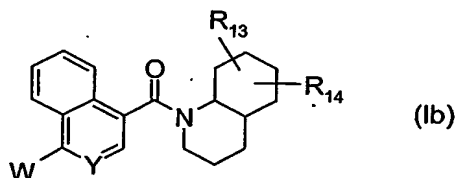
$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$X$  is  $CH$ ;

$Y$  is  $CH$ ;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

12. A compound according to claim 7 of the formula



wherein

$W$  is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

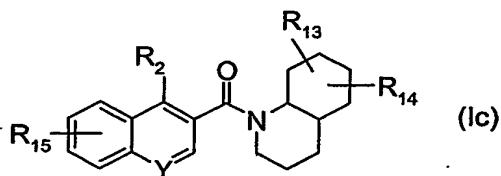
$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

$Y$  is  $CH$ ;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

13. A compound according to claim 7 of the formula

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wherein

$R_2$  is hydrogen, halo or alkoxy;

Y is CH or nitrogen;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;

$R_{15}$  is hydrogen,  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

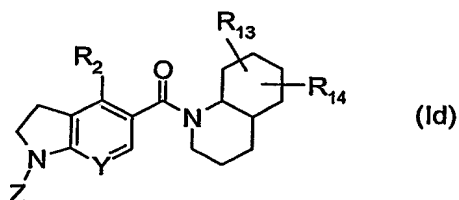
$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

or a pharmaceutically acceptable salt thereof.

14. A compound according to claim 7 of the formula



wherein

$R_2$  is hydrogen;

Z is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$  in which

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

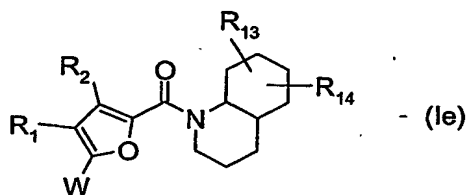
$R_7$  is hydrogen or methyl;

$R_8$  is hydrogen, optionally substituted alkyl, aralkyl or heteroaralkyl;

Y is CH;

R<sub>13</sub> and R<sub>14</sub> are independently hydrogen, hydroxy or optionally substituted lower alkyl;  
or a pharmaceutically acceptable salt thereof.

15. A compound according to claim 7 of the formula



wherein

R<sub>1</sub> and R<sub>2</sub> are independently hydrogen, halo or lower alkyl;

W is aryl or heteroaryl; or

W and R<sub>1</sub> combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo, -NR<sub>5</sub>Z, -C(O)NR<sub>6</sub>R<sub>7</sub>, -OR<sub>9</sub> or -OC(O)NR<sub>6</sub>R<sub>7</sub> in which

Z is -C(O)R<sub>6</sub>, -C(O)OR<sub>6</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, -C(S)NR<sub>6</sub>R<sub>7</sub>, -S(O)<sub>2</sub>R<sub>6</sub>, or -R<sub>8</sub>;

R<sub>5</sub> and R<sub>7</sub> are independently hydrogen or methyl;

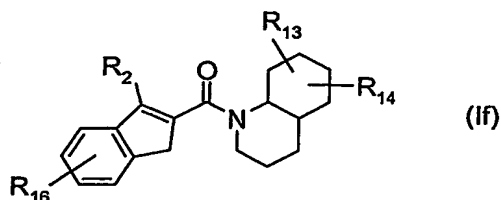
R<sub>6</sub> is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

R<sub>8</sub> is optionally substituted alkyl, aralkyl or heteroaralkyl;

R<sub>9</sub> is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

R<sub>13</sub> and R<sub>14</sub> are independently hydrogen, hydroxy or optionally substituted lower alkyl;  
or a pharmaceutically acceptable salt thereof.

16. A compound according to claim 7 of the formula



wherein

$R_2$  is hydrogen, halo or lower alkyl;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;

$R_{16}$  is hydrogen, halo, alkyl, aryl, heteroaryl or  $-NR_5Z$  in which

$Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ;

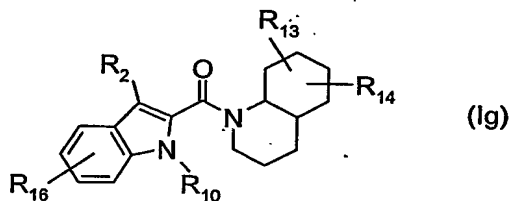
$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

or a pharmaceutically acceptable salt thereof.

17. A compound according to claim 7 of the formula



wherein

$R_2$  is hydrogen, halo or lower alkyl;

$R_{10}$  is hydrogen or methyl;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;

$R_{16}$  is hydrogen, halo, alkyl, aryl, heteroaryl or  $-NR_5Z$  in which

$Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ;

$R_5$  and  $R_7$  are independently hydrogen or methyl;

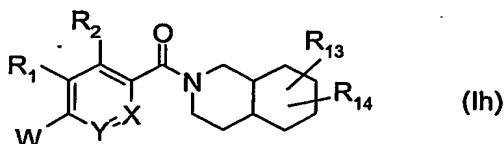
$R_6$  is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

or a pharmaceutically acceptable salt thereof.

18. A compound according to claim 3 of the formula

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wherein

$R_1$  and  $R_2$  are independently hydrogen, halo, optionally substituted amino, lower alkyl or lower alkoxy; or

$R_1$  and  $R_2$  combined together form an optionally substituted 6-membered aromatic ring;

$W$  is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl; or

$R_5$  and  $R_1$  are alkylene which combined together with the nitrogen atom to which  $R_5$  is attached and the carbon atoms to which  $W$  and  $R_1$  are attached form a 5-membered ring;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl; or

$W$  is aryl or heteroaryl; or

$W$  and  $R_1$  combined together with the carbon atoms to which they are attached form a 6-membered aromatic ring optionally substituted with alkyl, alkoxy, aryl, heteroaryl, halo,  $-NR_5Z$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$Z$  is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$ ;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;

$X$  is  $CH$ ;

$Y$  is  $CH$  or nitrogen; or

$-X=Y-$  is  $-CH_2-$ , oxygen, sulfur or  $-NR_{10}-$  in which  $R_{10}$  is hydrogen or methyl;

or a pharmaceutically acceptable salt thereof.

19. A compound according to claim 18 wherein

$R_1$  is hydrogen;

$R_2$  is hydrogen, chloro, methoxy, ethoxy, propoxy or optionally substituted amino;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is CH;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

20. A compound according to claim 18 wherein

$R_1$  is methyl, methoxy or optionally substituted amino;

$R_2$  is hydrogen;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is CH;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

21. A compound according to claim 18 wherein

$R_1$  and  $R_2$  are hydrogen;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

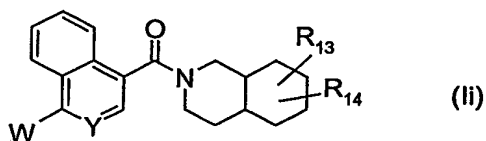
$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

X is CH;

Y is nitrogen;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl; or a pharmaceutically acceptable salt thereof.

22. A compound according to claim 18 of the formula



wherein

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_5$  and  $R_7$  are independently hydrogen or methyl;

$R_6$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl or alkanoyl;

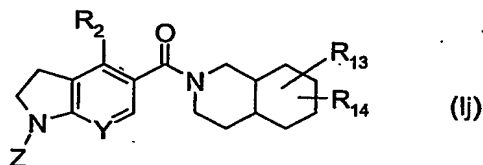
Y is CH;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;



or a pharmaceutically acceptable salt thereof.

23. A compound according to claim 18 of the formula



wherein

$R_2$  is hydrogen;

Z is  $-C(O)R_6$ ,  $-C(O)OR_6$ ,  $-C(O)NR_6R_7$ ,  $-C(S)NR_6R_7$ ,  $-S(O)_2R_6$ , or  $-R_8$  in which

$R_6$  is optionally substituted alkyl, aryl, heteroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_7$  is hydrogen or methyl;

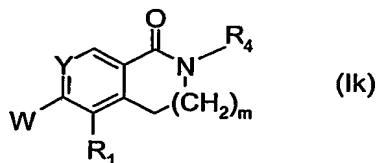
$R_8$  is hydrogen, optionally substituted alkyl, aralkyl or heteroaralkyl;

Y is CH;

$R_{13}$  and  $R_{14}$  are independently hydrogen, hydroxy or optionally substituted lower alkyl;

or a pharmaceutically acceptable salt thereof.

24. A compound according to claim 3 of the formula



wherein

$R_1$  is hydrogen;

$R_4$  is  $-(CHR_{11})_nR_{12}$  in which

n is zero or an integer from 1 to 2;

$R_{11}$  is hydrogen;

$R_{12}$  is aryl, heteroaryl, heterocyclyl or cycloalkyl;

W is  $-NR_5C(O)R_6$ ,  $-NR_5C(O)OR_6$ ,  $-NR_5C(O)NR_6R_7$ ,  $-NR_5C(S)NR_6R_7$ ,  $-NR_5S(O)_2R_6$ ,  $-NR_5R_8$ ,  $-C(O)NR_6R_7$ ,  $-OR_9$  or  $-OC(O)NR_6R_7$  in which

$R_6$  and  $R_7$  are independently hydrogen or methyl;

$R_8$  is optionally substituted alkyl, aryl, hetroaryl, cycloalkyl, aralkyl or heteroaralkyl;

$R_8$  is optionally substituted alkyl, aralkyl or heteroaralkyl;

$R_9$  is ( $C_{1-6}$ )alkyl substituted by cycloalkyl, alkoxy, cycloalkoxy, alkylthio, aryloxy, heterocycloxy, arylthio, aryl or heteroaryl;

Y is CH;

m is zero or an integer from 1 to 2;

or a pharmaceutically acceptable salt thereof.

25. A method for the inhibition of  $11\beta$ -hydroxysteroid dehydrogenase type 1 ( $11\beta$ -HSD1) oxoreductase activity in mammals which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
26. A method to control glucocorticoid concentration in mammals which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
27. A method according to claim 26, which comprises lowering intracellular and hepatic glucocorticoid concentrations, increasing insulin sensitivity in the adipose tissue and in the muscle, reducing lipolysis and free fatty acid production in the adipose tissue, and inhibiting hepatic gluconeogenesis.
28. A method for the treatment of conditions associated with  $11\beta$ -HSD1 oxoreductase activity in mammals which comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
29. A method for the treatment of glucocorticoid associated disorders in mammals which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
30. A method according to claim 29, which comprises administering a compound of claim 1 in combination with a therapeutically effective amount of insulin, insulin derivative or mimetic, insulin secretagogue, insulinotropic sulfonylurea receptor ligand, insulin sensitizer,

biguanide, alpha-glucosidase inhibitor, GLP-1, GLP-1 analog or mimetic, DPP-IV inhibitor, hypolipidemic agent, anti-obesity agent, cholestyramine, fibrate, nicotinic acid, or aspirin.

31. A method for the treatment of impaired glucose tolerance in Type 2 diabetes which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
32. A method for the treatment of Syndrome-X, dyslipidemia, hypertension and central obesity which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of claim 1.
33. A pharmaceutical composition comprising a compound of claim 1 preferably in a therapeutically effective amount, in combination with one or more pharmaceutically acceptable carriers.
34. A pharmaceutical composition comprising a compound according to any one of claims 1 to 24 preferably in a therapeutically effective amount, in combination with insulin, insulin derivative or mimetic, insulin secretagogue, insulinotropic sulfonylurea receptor ligand, insulin sensitizer, biguanide, alpha-glucosidase inhibitor, GLP-1, GLP-1 analog or mimetic, DPP-IV inhibitor, hypolipidemic agent, anti-obesity agent, cholestyramine, fibrate, nicotinic acid, or aspirin, preferably in a therapeutically effective amount.
35. A pharmaceutical composition according to claim 33 or 34, for the treatment of impaired glucose tolerance, Type 2 diabetes and central obesity.
36. Use of a pharmaceutical composition according to claim 33 or 34, for the preparation of a medicament for the treatment of conditions associated with 11 $\beta$ -HSD1 oxoreductase activity.
37. A compound according to any one of claims 1 to 24, for use as a medicament.
38. Use of a compound according to any one of claims 1 to 24, for the preparation of a pharmaceutical composition for the treatment of conditions associated with 11 $\beta$ -HSD1 oxoreductase activity.
39. Use according to any one of claims 36 or 38, wherein the condition associated with 11 $\beta$ -HSD1 oxoreductase activity is selected from impaired glucose tolerance, Type 2 diabetes, insulin resistance, dyslipidemia, metabolic Syndrome X and central obesity.